

1 Claims

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3 1. A catheter having a heat transfer device at or
4 near its distal end, wherein the heat transfer
5 device is layered or coated onto or into the
6 catheter wall.

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8 2. A catheter as claimed in Claim 1 wherein the
9 heat transfer device is a flexible film having
10 one or more electrical resistor flow paths
11 thereon or therethrough, which film is locatable
12 around the catheter wall.

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14 3. A catheter as claimed in Claim 2 wherein the
15 film is a flexible metal film on which the one
16 or more electrical paths have been etched or
17 otherwise created.

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19 4. A catheter as claimed in Claim 2 wherein the one
20 or more electrical paths are added onto a
21 plastic film backing.

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23 5. A catheter as claimed in Claim 4 wherein the one
24 or more electrical paths are added by a
25 deposition process.

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27 6. A catheter as claimed in Claim 4 wherein the one
28 or electrical paths are added by a coating
29 process.

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- 1 7. A catheter as claimed in Claim 1 wherein the
2 heat transfer device is disposed directly onto
3 the catheter wall.
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- 5 8. A catheter as claimed in Claim 7 wherein the
6 heat transfer device is disposed onto the
7 catheter wall by a deposition process.
8
- 9 9. A catheter as claimed in Claim 8 where in the
10 deposition process is a plasma deposition
11 process.
12
- 13 10. A catheter as claimed in Claim 8 wherein the
14 deposition process is a printing process.
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- 16 11. A catheter as claimed in Claim 10 wherein the
17 printing process uses a conductive ink or a
18 conductive layer, with subsequent etching.
19
- 20 12. A catheter as claimed in any one of Claims 7-11
21 wherein a temperature sensor material is also
22 disposed onto the catheter wall by a deposition
23 process.
24
- 25 13. A catheter as claimed in any one of the
26 preceding Claims wherein the heat transfer
27 device includes one or more temperature sensors
28 or sensor leads.
29
- Sub an* *h2*

- 1 14. A catheter as claimed in any one of the
2 preceding Claims wherein one or more insulator
3 layers are located over the resistor structure.
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- 5 15. A catheter as claimed in Claim 14 wherein one of
6 the insulator layers is parylene C.
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- 8 16. A catheter as claimed in any one of the
9 preceding Claims wherein the heat transfer
10 device comprises an outer or penultimate outer
11 layer of silver or gold.
12
- 13 17. A catheter as claimed in Claim 1 wherein a
14 length of the outer wall of the catheter is
15 wholly, substantially or partly formed from
16 doped material able to act as a heat transfer
17 device upon application of power therethrough.
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- 19 18. A catheter as claimed in Claim 17 wherein the
20 doped material is silver or gold.
21
- 22 19. A catheter wherein the catheter wall has one or
23 more metal wires therethrough.
24
- 25 20. A catheter as claimed in Claim 19 wherein the or
26 each wire is copper.
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- 28 21. A catheter as claimed in Claim 19 or Claim 20
29 wherein the or each wire is co-extruded within
30 the catheter body.
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cont*

Sub 2
Cont.
1 22. A catheter as claimed in any one of Claims 19-21
2 wherein the catheter wall includes one or more
3 sets of wires.
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5 23. A catheter as claimed in Claim 22 wherein the
6 catheter body has three sets of wires, each set
7 comprising two wires.
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Sub 3
9 24. A catheter as claimed in any one of Claims 19-24
10 *as* wherein they or each wire inside the catheter
11 wall is easily exposable.
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13 25. A catheter as claimed in any one of Claims 1-18
14 in combination with a catheter as claimed in any
15 one of Claims 19-24.
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17 26. A catheter as claimed in any one of the above
18 Claims of size 3-5F.
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20 27. A catheter as claimed in any one of the
21 preceding Claims having a single distal lumen.
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23 28. A catheter as claimed in Claim 27 wherein the
24 lumen has a diameter of approximately 0.5-07 mm.